Full wwPDB X-ray Structure Validation Report (i)

Nov 10, 2024 – 08:03 AM EST

PDB ID	:	3SMH
Title	:	Crystal structure of major peanut allergen Ara h 1
Authors	:	Cabanos, C.S.; Mikami, B.; Maruyama, N.
Deposited on	:	2011-06-28
Resolution	:	2.43 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

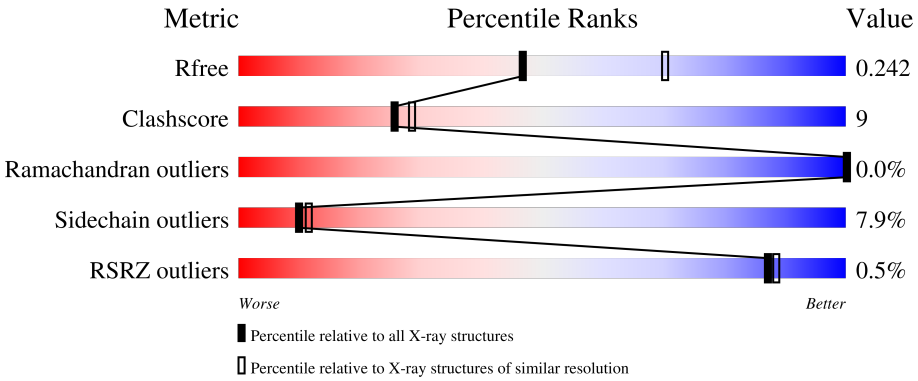
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.43 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	2124 (2.46-2.42)
Clashscore	180529	2259 (2.46-2.42)
Ramachandran outliers	177936	2244 (2.46-2.42)
Sidechain outliers	177891	2244 (2.46-2.42)
RSRZ outliers	164620	2124 (2.46-2.42)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	418	68% 19% • 11%
1	B	418	65% 20% • 13%
1	C	418	67% 20% • 11%
1	D	418	% 67% 19% • 11%
1	E	418	% 65% 20% • 13%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	418	

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 17950 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Allergen Ara h 1, clone P41B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	373	Total	C	N	O	S	0	0	0
			2982	1859	553	564	6			
1	B	365	Total	C	N	O	S	0	0	0
			2910	1820	537	547	6			
1	C	370	Total	C	N	O	S	0	0	0
			2949	1841	546	556	6			
1	D	373	Total	C	N	O	S	0	0	0
			2965	1851	551	557	6			
1	E	365	Total	C	N	O	S	0	0	0
			2901	1812	532	551	6			
1	F	364	Total	C	N	O	S	0	0	0
			2906	1817	538	545	6			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	275	VAL	MET	conflict	UNP P43238
B	275	VAL	MET	conflict	UNP P43238
C	275	VAL	MET	conflict	UNP P43238
D	275	VAL	MET	conflict	UNP P43238
E	275	VAL	MET	conflict	UNP P43238
F	275	VAL	MET	conflict	UNP P43238

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	63	Total	O	0	0
			63	63		
2	B	47	Total	O	0	0
			47	47		
2	C	59	Total	O	0	0
			59	59		

Continued on next page...

Continued from previous page...

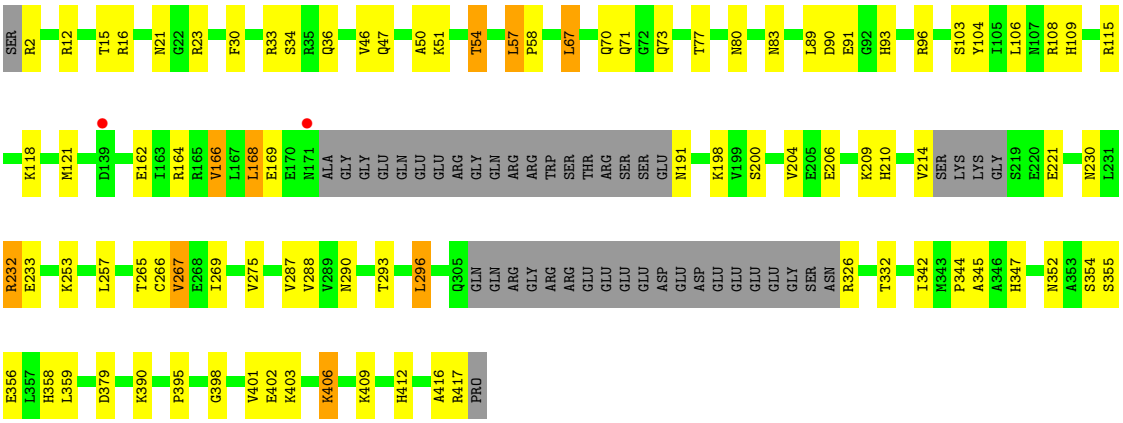
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	D	85	Total O 85 85	0	0
2	E	36	Total O 36 36	0	0
2	F	47	Total O 47 47	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

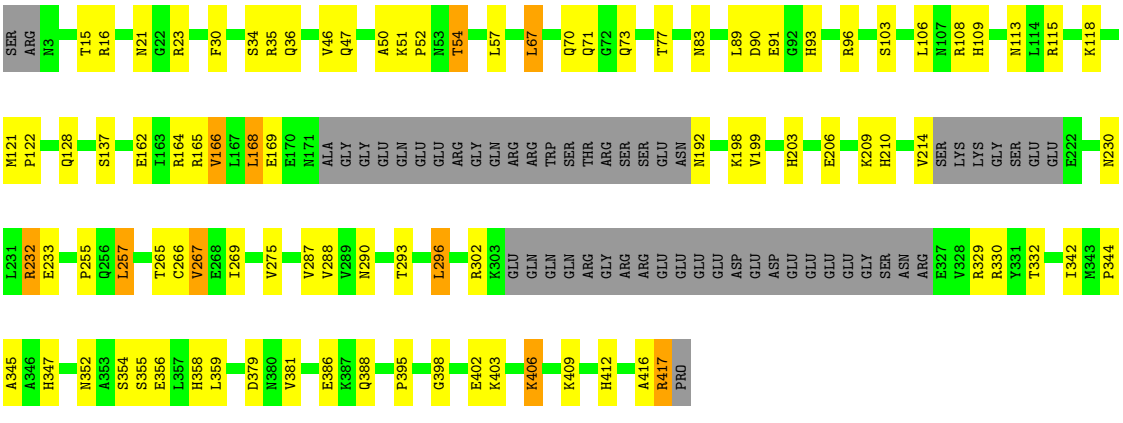
• Molecule 1: Allergen Ara h 1, clone P41B

Chain A:



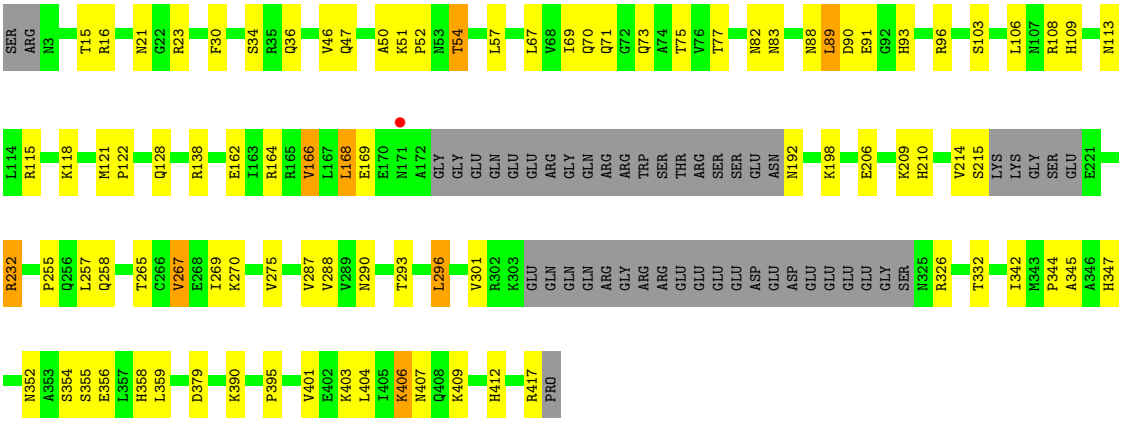
• Molecule 1: Allergen Ara h 1, clone P41B

Chain B:



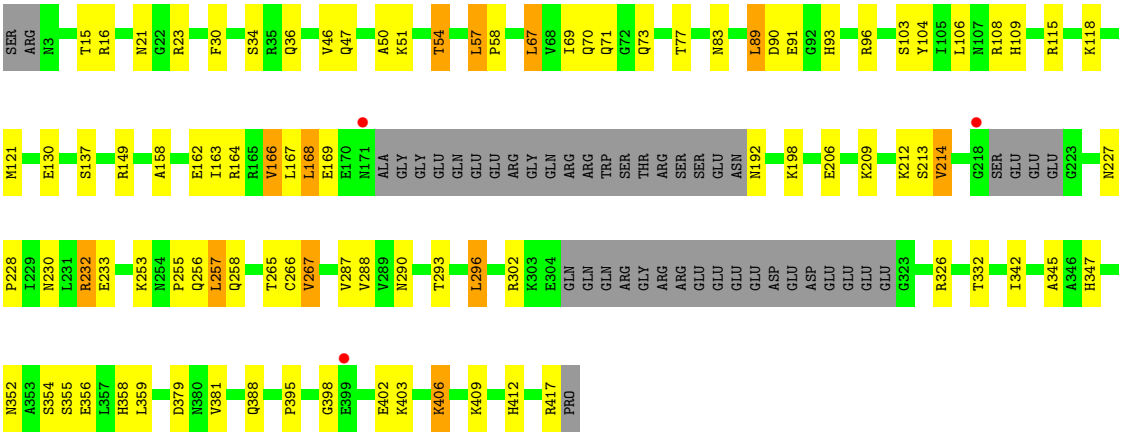
• Molecule 1: Allergen Ara h 1, clone P41B

Chain C:



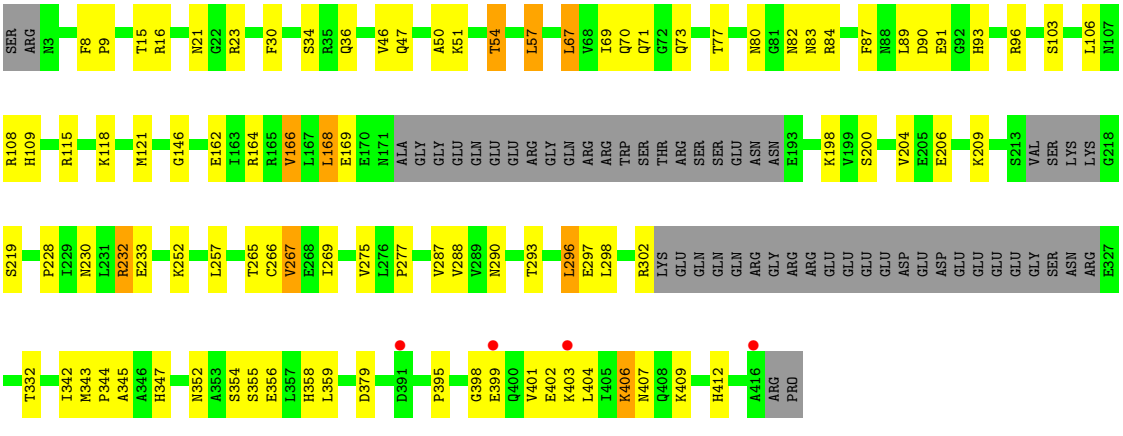
• Molecule 1: Allergen Ara h 1, clone P41B

Chain D:



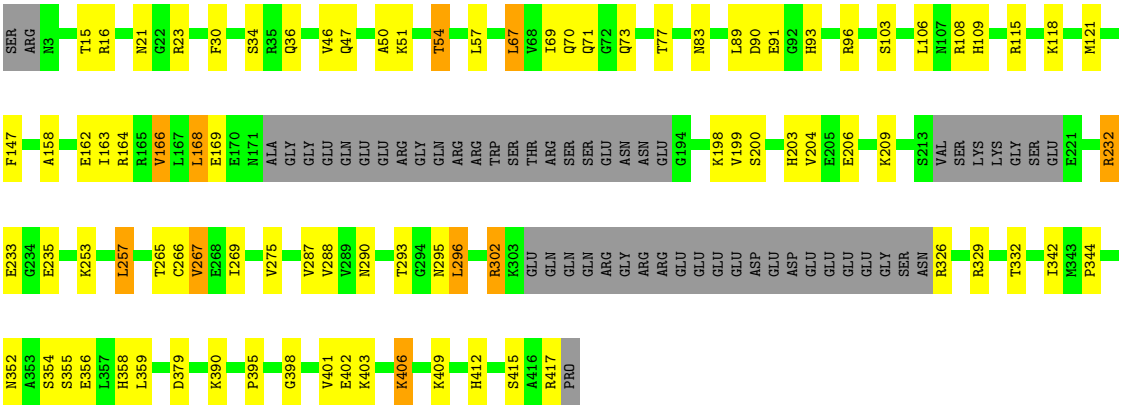
• Molecule 1: Allergen Ara h 1, clone P41B

Chain E:



• Molecule 1: Allergen Ara h 1, clone P41B

Chain F:


SER ARG N3 T15 R16 N21 G22 R23 F30 S34 R35 Q36 V46 Q47 A50 K51 T54 L57 L67 V68 I69 Q70 Q71 G72 Q73 T77 M83 L89 D90 E91 G92 H93 R96 S103 L106 N107 R108 H109 R115 K118 M121
F147 A158 E162 I163 R164 R165 V166 L167 L168 E169 E170 N171 ALA GLY GLY GLU GLN GLU GLU ARG GLY GLN ARG ARG TRP SER THR ARG SER SER GLU ASN ASN GLU G194 K198 V199 S200 H203 V204 E205 E206 K209 S213 VAL SER LYS LYS GLY SER GLU E221 R232
E233 G234 E235 K253 L257 T265 C266 V267 E268 I269 V275 V287 V288 V289 N290 T293 G294 N295 L296 R302 K303 GLU GLN GLN GLN ARG GLY ARG ARG GLU GLU GLU GLU ASP GLU ASP GLU GLU GLU GLU GLY SER ASN R326 R329 T332 I342 M343 P344
N352 A353 S354 S355 E356 L357 H358 L359 D379 K390 P395 G398 V401 E402 K403 K406 K409 H412 S415 A416 R417 PRO

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	156.49Å 89.01Å 158.97Å 90.00° 107.15° 90.00°	Depositor
Resolution (Å)	15.00 – 2.43 15.00 – 2.43	Depositor EDS
% Data completeness (in resolution range)	98.3 (15.00-2.43) 97.8 (15.00-2.43)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	6.35 (at 2.42Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.6.4_486)	Depositor
R, R_{free}	0.202 , 0.244 0.201 , 0.242	Depositor DCC
R_{free} test set	3859 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	39.2	Xtriage
Anisotropy	0.754	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 40.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.017 for 1/2*h-3/2*k,-1/2*h-1/2*k,-1/2*h+1/2*k-l 0.018 for 1/2*h+3/2*k,1/2*h-1/2*k,-1/2*h-1/2*k-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	17950	wwPDB-VP
Average B, all atoms (Å^2)	46.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.13% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CSD

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.42	0/3023	0.56	0/4072
1	B	0.41	0/2951	0.88	6/3977 (0.2%)
1	C	0.41	0/2990	0.56	0/4029
1	D	0.42	0/3006	0.75	3/4047 (0.1%)
1	E	0.41	0/2942	0.57	0/3965
1	F	0.41	0/2947	0.56	0/3970
All	All	0.41	0/17859	0.66	9/24060 (0.0%)

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	149	ARG	NE-CZ-NH1	-21.52	109.54	120.30
1	B	35	ARG	NE-CZ-NH1	-21.03	109.79	120.30
1	D	149	ARG	NE-CZ-NH2	20.62	130.61	120.30
1	B	35	ARG	NE-CZ-NH2	20.39	130.49	120.30
1	B	165	ARG	NE-CZ-NH1	-20.22	110.19	120.30
1	B	165	ARG	NE-CZ-NH2	20.12	130.36	120.30
1	B	35	ARG	CD-NE-CZ	10.07	137.70	123.60
1	D	149	ARG	CD-NE-CZ	9.89	137.44	123.60
1	B	165	ARG	CD-NE-CZ	9.47	136.85	123.60

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2982	0	2955	71	0
1	B	2910	0	2892	57	0
1	C	2949	0	2927	58	0
1	D	2965	0	2949	60	0
1	E	2901	0	2864	57	0
1	F	2906	0	2890	66	0
2	A	63	0	0	0	0
2	B	47	0	0	3	0
2	C	59	0	0	3	0
2	D	85	0	0	5	0
2	E	36	0	0	2	0
2	F	47	0	0	1	0
All	All	17950	0	17477	328	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (328) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:253:LYS:CG	1:F:233:GLU:HG3	1.93	0.99
1:A:209:LYS:HE3	1:A:210:HIS:CE1	1.97	0.98
1:A:417:ARG:HA	1:A:417:ARG:HH11	1.25	0.97
1:A:2:ARG:HG2	1:A:12:ARG:HH12	1.30	0.97
1:A:253:LYS:HG3	1:F:233:GLU:CG	2.01	0.91
1:A:253:LYS:HG3	1:F:233:GLU:HG3	1.56	0.86
1:A:233:GLU:HG3	1:F:235:GLU:HG3	1.56	0.86
1:F:267:VAL:HG13	1:F:359:LEU:HB2	1.58	0.86
1:A:417:ARG:HA	1:A:417:ARG:NH1	1.91	0.84
1:A:209:LYS:HE3	1:A:210:HIS:HE1	1.42	0.83
1:E:267:VAL:HG13	1:E:359:LEU:HB2	1.60	0.83
1:C:267:VAL:HG13	1:C:359:LEU:HB2	1.61	0.83
1:D:267:VAL:HG13	1:D:359:LEU:HB2	1.60	0.81
1:A:267:VAL:HG13	1:A:359:LEU:HB2	1.62	0.80
1:B:267:VAL:HG13	1:B:359:LEU:HB2	1.63	0.80
1:A:253:LYS:HG2	1:F:233:GLU:HG3	1.64	0.80
1:A:253:LYS:HG3	1:F:233:GLU:CD	2.02	0.80
1:C:209:LYS:HE3	1:C:210:HIS:NE2	2.00	0.77
1:A:416:ALA:O	1:A:417:ARG:HD2	1.86	0.76

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:379:ASP:OD2	1:B:412:HIS:HE1	1.70	0.75
1:E:379:ASP:OD2	1:E:412:HIS:HE1	1.69	0.75
1:B:210:HIS:HB2	2:B:419:HOH:O	1.88	0.74
1:E:395:PRO:HG3	1:F:169:GLU:O	1.88	0.74
1:B:93:HIS:CD2	1:B:214:VAL:HG21	2.23	0.74
1:C:395:PRO:HG3	1:D:169:GLU:O	1.88	0.73
1:E:51:LYS:O	1:E:54:THR:HB	1.89	0.73
1:A:233:GLU:CG	1:F:235:GLU:CG	2.66	0.72
1:F:379:ASP:OD2	1:F:412:HIS:HE1	1.72	0.71
1:A:233:GLU:CG	1:F:235:GLU:HG3	2.20	0.71
1:D:51:LYS:O	1:D:54:THR:HB	1.89	0.71
1:A:253:LYS:CG	1:F:233:GLU:CG	2.62	0.69
1:D:379:ASP:OD2	1:D:412:HIS:HE1	1.76	0.68
1:A:164:ARG:HA	1:A:168:LEU:HB2	1.76	0.68
1:E:47:GLN:HE21	1:E:70:GLN:HE22	1.39	0.68
1:A:51:LYS:O	1:A:54:THR:HB	1.94	0.68
1:A:379:ASP:OD2	1:A:412:HIS:HE1	1.77	0.68
1:F:164:ARG:HA	1:F:168:LEU:HB2	1.76	0.68
1:B:51:LYS:O	1:B:54:THR:HB	1.94	0.67
1:B:302:ARG:HG3	1:B:329:ARG:HD2	1.77	0.67
1:C:379:ASP:OD2	1:C:412:HIS:HE1	1.76	0.67
1:F:51:LYS:O	1:F:54:THR:HB	1.94	0.67
1:B:164:ARG:HA	1:B:168:LEU:HB2	1.77	0.66
1:C:51:LYS:O	1:C:54:THR:HB	1.95	0.66
1:E:164:ARG:HA	1:E:168:LEU:HB2	1.78	0.66
1:A:233:GLU:HG3	1:F:235:GLU:CG	2.26	0.66
1:E:90:ASP:H	1:E:93:HIS:CD2	2.14	0.65
1:D:164:ARG:HA	1:D:168:LEU:HB2	1.79	0.65
1:F:164:ARG:O	1:F:169:GLU:HG2	1.98	0.64
1:E:164:ARG:O	1:E:169:GLU:HG2	1.98	0.64
1:C:164:ARG:HA	1:C:168:LEU:HB2	1.80	0.63
1:C:90:ASP:H	1:C:93:HIS:CD2	2.16	0.63
1:B:164:ARG:O	1:B:169:GLU:HG2	1.98	0.63
1:E:47:GLN:NE2	1:E:70:GLN:HE22	1.97	0.63
1:F:71:GLN:NE2	1:F:115:ARG:HH21	1.96	0.62
1:A:233:GLU:CG	1:F:235:GLU:HG2	2.29	0.62
1:C:164:ARG:O	1:C:169:GLU:HG2	1.99	0.62
1:B:47:GLN:HE21	1:B:70:GLN:HE22	1.47	0.62
1:A:2:ARG:HG2	1:A:12:ARG:NH1	2.11	0.62
1:D:137:SER:HA	1:D:192:ASN:HD21	1.64	0.61
1:D:164:ARG:O	1:D:169:GLU:HG2	2.00	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:47:GLN:HE21	1:C:70:GLN:HE22	1.48	0.61
1:A:47:GLN:HE21	1:A:70:GLN:HE22	1.47	0.61
1:D:90:ASP:H	1:D:93:HIS:CD2	2.20	0.60
1:B:90:ASP:H	1:B:93:HIS:CD2	2.19	0.60
1:F:47:GLN:HE21	1:F:70:GLN:HE22	1.50	0.60
1:C:34:SER:OG	1:C:36:GLN:HG2	2.01	0.60
1:A:164:ARG:O	1:A:169:GLU:HG2	2.02	0.59
1:D:255:PRO:HD2	2:D:451:HOH:O	2.02	0.59
1:C:293:THR:OG1	1:C:354:SER:HB2	2.01	0.59
1:F:295:ASN:HB3	2:F:458:HOH:O	2.02	0.59
1:A:293:THR:OG1	1:A:354:SER:HB2	2.02	0.59
1:B:169:GLU:O	1:F:395:PRO:HG3	2.02	0.59
1:F:90:ASP:H	1:F:93:HIS:CD2	2.20	0.59
1:A:90:ASP:H	1:A:93:HIS:CD2	2.21	0.59
1:A:34:SER:OG	1:A:36:GLN:HG2	2.03	0.58
1:E:293:THR:OG1	1:E:354:SER:HB2	2.04	0.58
1:D:253:LYS:NZ	1:E:252:LYS:HD2	2.17	0.58
1:F:34:SER:OG	1:F:36:GLN:HG2	2.03	0.58
1:C:209:LYS:HG3	1:C:210:HIS:CD2	2.37	0.58
1:F:162:GLU:O	1:F:166:VAL:HG13	2.03	0.58
1:E:34:SER:OG	1:E:36:GLN:HG2	2.03	0.58
1:A:47:GLN:NE2	1:A:70:GLN:HE22	2.03	0.57
1:B:71:GLN:NE2	1:B:115:ARG:HH21	2.02	0.57
1:D:47:GLN:HE21	1:D:70:GLN:HE22	1.52	0.57
1:D:293:THR:OG1	1:D:354:SER:HB2	2.04	0.57
1:D:34:SER:OG	1:D:36:GLN:HG2	2.05	0.56
1:C:210:HIS:HB2	2:C:475:HOH:O	2.05	0.56
1:E:162:GLU:O	1:E:166:VAL:HG13	2.06	0.56
1:E:342:ILE:O	1:E:344:PRO:HD3	2.05	0.56
1:B:34:SER:OG	1:B:36:GLN:HG2	2.05	0.56
1:B:162:GLU:O	1:B:166:VAL:HG13	2.06	0.56
1:C:47:GLN:NE2	1:C:70:GLN:HE22	2.04	0.55
1:B:47:GLN:NE2	1:B:70:GLN:HE22	2.03	0.55
1:B:379:ASP:OD2	1:B:412:HIS:CE1	2.56	0.55
1:C:71:GLN:NE2	1:C:115:ARG:HH21	2.03	0.55
1:A:162:GLU:O	1:A:166:VAL:HG13	2.07	0.54
1:D:345:ALA:O	1:D:347:HIS:HD2	1.90	0.54
1:D:232:ARG:NH1	2:D:449:HOH:O	2.40	0.54
1:F:21:ASN:ND2	1:F:198:LYS:HG2	2.22	0.54
1:F:296:LEU:O	1:F:332:THR:HA	2.07	0.54
1:D:47:GLN:NE2	1:D:70:GLN:HE22	2.05	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:206:GLU:O	1:E:209:LYS:HG2	2.08	0.54
1:F:47:GLN:NE2	1:F:70:GLN:HE22	2.06	0.54
1:B:166:VAL:O	1:F:395:PRO:HD2	2.08	0.54
1:C:206:GLU:O	1:C:209:LYS:HG2	2.08	0.54
1:E:399:GLU:HB2	2:E:438:HOH:O	2.08	0.54
1:E:23:ARG:HG2	1:E:23:ARG:HH21	1.73	0.53
1:E:71:GLN:NE2	1:E:115:ARG:HH21	2.06	0.53
1:A:166:VAL:O	1:D:395:PRO:HD2	2.07	0.53
1:D:73:GLN:HE21	1:D:109:HIS:HD2	1.55	0.53
1:A:91:GLU:OE2	1:A:232:ARG:NH2	2.42	0.53
1:D:71:GLN:NE2	1:D:115:ARG:HH21	2.06	0.53
1:F:293:THR:OG1	1:F:354:SER:HB2	2.09	0.53
1:F:406:LYS:O	1:F:409:LYS:HE3	2.07	0.53
1:A:80:ASN:O	1:D:381:VAL:HG23	2.08	0.53
1:B:395:PRO:HG3	1:E:169:GLU:O	2.09	0.53
1:B:406:LYS:O	1:B:409:LYS:HE3	2.08	0.53
1:B:91:GLU:OE2	1:B:232:ARG:NH2	2.41	0.53
1:F:70:GLN:HE21	1:F:290:ASN:ND2	2.07	0.53
1:F:50:ALA:HB1	1:F:54:THR:CG2	2.39	0.52
1:A:296:LEU:O	1:A:332:THR:HA	2.10	0.52
1:D:162:GLU:O	1:D:166:VAL:HG13	2.10	0.52
1:E:296:LEU:O	1:E:332:THR:HA	2.10	0.52
1:B:345:ALA:O	1:B:347:HIS:HD2	1.93	0.52
1:B:296:LEU:O	1:B:332:THR:HA	2.09	0.52
1:C:162:GLU:O	1:C:166:VAL:HG13	2.08	0.52
1:C:406:LYS:O	1:C:409:LYS:HE3	2.09	0.52
1:F:36:GLN:HE22	1:F:302:ARG:HH12	1.57	0.52
1:E:379:ASP:OD2	1:E:412:HIS:CE1	2.58	0.52
1:F:206:GLU:O	1:F:209:LYS:HG2	2.09	0.52
1:C:355:SER:O	1:C:356:GLU:C	2.49	0.51
1:F:355:SER:O	1:F:356:GLU:C	2.48	0.51
1:F:30:PHE:CD1	1:F:342:ILE:HD11	2.45	0.51
1:E:73:GLN:HE21	1:E:109:HIS:HD2	1.59	0.51
1:D:206:GLU:O	1:D:209:LYS:HG2	2.11	0.51
1:D:70:GLN:HE21	1:D:290:ASN:ND2	2.09	0.51
1:D:214:VAL:HG21	1:D:228:PRO:HD2	1.92	0.51
1:A:206:GLU:O	1:A:209:LYS:HG2	2.10	0.51
1:A:406:LYS:O	1:A:409:LYS:HE3	2.11	0.50
1:C:21:ASN:ND2	1:C:198:LYS:HG2	2.26	0.50
1:F:379:ASP:OD2	1:F:412:HIS:CE1	2.60	0.50
1:F:77:THR:O	1:F:103:SER:HA	2.11	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:406:LYS:O	1:D:409:LYS:HE3	2.11	0.50
1:E:355:SER:O	1:E:356:GLU:C	2.49	0.50
1:A:70:GLN:HE21	1:A:290:ASN:ND2	2.10	0.50
1:A:71:GLN:NE2	1:A:115:ARG:HH21	2.09	0.50
1:B:70:GLN:HE21	1:B:290:ASN:ND2	2.10	0.50
1:E:406:LYS:O	1:E:409:LYS:HE3	2.10	0.50
1:B:302:ARG:HG3	1:B:329:ARG:CD	2.41	0.50
1:C:50:ALA:HB1	1:C:54:THR:CG2	2.41	0.50
1:A:2:ARG:HA	1:A:33:ARG:HH21	1.76	0.50
1:F:91:GLU:OE2	1:F:232:ARG:NH2	2.44	0.50
1:C:296:LEU:O	1:C:332:THR:HA	2.11	0.50
1:D:355:SER:O	1:D:356:GLU:C	2.49	0.50
1:B:293:THR:OG1	1:B:354:SER:HB2	2.11	0.50
1:C:23:ARG:HH21	1:C:23:ARG:HG2	1.76	0.49
1:D:77:THR:O	1:D:103:SER:HA	2.13	0.49
1:D:91:GLU:OE2	1:D:232:ARG:NH2	2.46	0.49
1:D:230:ASN:HB3	1:D:233:GLU:HB2	1.94	0.49
1:A:77:THR:O	1:A:103:SER:HA	2.13	0.49
1:B:355:SER:O	1:B:356:GLU:C	2.50	0.49
1:C:232:ARG:NH1	2:C:468:HOH:O	2.44	0.49
1:D:296:LEU:O	1:D:332:THR:HA	2.13	0.49
1:B:73:GLN:HE21	1:B:109:HIS:HD2	1.60	0.49
1:B:21:ASN:ND2	1:B:198:LYS:HG2	2.27	0.49
1:D:21:ASN:ND2	1:D:198:LYS:HG2	2.27	0.49
1:F:71:GLN:HE21	1:F:115:ARG:HH21	1.60	0.49
1:A:233:GLU:HG2	1:F:235:GLU:HG2	1.94	0.49
1:B:50:ALA:HB1	1:B:54:THR:CG2	2.43	0.49
1:D:379:ASP:OD2	1:D:412:HIS:CE1	2.62	0.49
1:A:73:GLN:HE21	1:A:109:HIS:HD2	1.59	0.49
1:D:36:GLN:HE22	1:D:302:ARG:NH1	2.11	0.48
1:E:21:ASN:ND2	1:E:198:LYS:HG2	2.28	0.48
1:F:67:LEU:HD12	1:F:67:LEU:C	2.33	0.48
1:C:91:GLU:OE2	1:C:232:ARG:NH2	2.46	0.48
1:D:412:HIS:HD2	2:D:478:HOH:O	1.94	0.48
1:E:398:GLY:O	1:E:402:GLU:HG3	2.13	0.48
1:F:50:ALA:HB1	1:F:54:THR:HG21	1.95	0.48
1:A:209:LYS:CE	1:A:210:HIS:CE1	2.86	0.48
1:E:50:ALA:HB1	1:E:54:THR:CG2	2.44	0.48
1:E:404:LEU:HD21	1:F:163:ILE:HA	1.94	0.48
1:A:345:ALA:O	1:A:347:HIS:HD2	1.96	0.48
1:A:355:SER:O	1:A:356:GLU:C	2.51	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:209:LYS:HE3	1:C:210:HIS:CE1	2.48	0.48
1:C:73:GLN:HE21	1:C:109:HIS:HD2	1.61	0.48
1:C:70:GLN:HE21	1:C:290:ASN:ND2	2.11	0.48
1:D:50:ALA:HB1	1:D:54:THR:CG2	2.44	0.48
1:F:23:ARG:HH21	1:F:23:ARG:HG2	1.77	0.48
1:A:50:ALA:HB1	1:A:54:THR:CG2	2.44	0.48
1:A:2:ARG:HA	1:A:33:ARG:NH2	2.29	0.47
1:C:379:ASP:OD2	1:C:412:HIS:CE1	2.63	0.47
1:E:230:ASN:HB3	1:E:233:GLU:HB2	1.96	0.47
1:F:302:ARG:HG3	1:F:329:ARG:HD2	1.96	0.47
1:A:395:PRO:HD2	1:C:166:VAL:O	2.15	0.47
1:A:395:PRO:HG3	1:C:169:GLU:O	2.14	0.47
1:D:212:LYS:NZ	2:D:467:HOH:O	2.47	0.47
1:A:30:PHE:CD1	1:A:342:ILE:HD11	2.50	0.47
1:B:77:THR:O	1:B:103:SER:HA	2.15	0.47
1:B:203:HIS:HD2	2:B:422:HOH:O	1.98	0.47
1:A:221:GLU:HG2	1:F:253:LYS:HD2	1.95	0.47
1:F:73:GLN:HE21	1:F:109:HIS:HD2	1.63	0.47
1:C:50:ALA:HB1	1:C:54:THR:HG21	1.97	0.47
1:E:407:ASN:HD22	1:F:158:ALA:HB2	1.80	0.47
1:B:23:ARG:HH21	1:B:23:ARG:HG2	1.80	0.46
1:B:30:PHE:CD1	1:B:342:ILE:HD11	2.50	0.46
1:B:206:GLU:O	1:B:209:LYS:HG2	2.15	0.46
1:B:388:GLN:HE21	1:E:206:GLU:HG2	1.80	0.46
1:B:255:PRO:HD2	2:B:465:HOH:O	2.15	0.46
1:E:69:ILE:HG13	1:E:89:LEU:HB3	1.97	0.46
1:A:21:ASN:ND2	1:A:198:LYS:HG2	2.30	0.46
1:B:269:ILE:CD1	1:B:275:VAL:CG2	2.94	0.46
1:E:23:ARG:HH21	1:E:23:ARG:CG	2.28	0.46
1:F:269:ILE:CD1	1:F:275:VAL:CG2	2.94	0.46
1:C:214:VAL:O	1:C:215:SER:HB3	2.16	0.46
1:C:417:ARG:HA	1:C:417:ARG:HH11	1.81	0.46
1:A:67:LEU:HD12	1:A:67:LEU:C	2.35	0.46
1:C:404:LEU:HD21	1:D:163:ILE:HA	1.98	0.46
1:A:23:ARG:HG2	1:A:23:ARG:HH21	1.80	0.46
1:A:269:ILE:CD1	1:A:275:VAL:CG2	2.94	0.46
1:B:386:GLU:HG3	1:E:84:ARG:HD3	1.97	0.46
1:C:269:ILE:CD1	1:C:275:VAL:CG2	2.94	0.46
1:D:214:VAL:CG2	1:D:228:PRO:HD2	2.46	0.46
1:A:342:ILE:O	1:A:344:PRO:HD3	2.15	0.45
1:C:345:ALA:O	1:C:347:HIS:HD2	1.99	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:381:VAL:HG23	1:E:80:ASN:O	2.16	0.45
1:B:417:ARG:HA	1:B:417:ARG:NE	2.31	0.45
1:E:77:THR:O	1:E:103:SER:HA	2.16	0.45
1:F:46:VAL:HB	1:F:118:LYS:HB2	1.98	0.45
1:A:253:LYS:HG2	1:F:233:GLU:CG	2.38	0.45
1:C:30:PHE:CD1	1:C:342:ILE:HD11	2.52	0.45
1:D:30:PHE:CD1	1:D:342:ILE:HD11	2.52	0.45
1:A:416:ALA:C	1:A:417:ARG:HD2	2.37	0.45
1:B:122:PRO:HB3	1:B:128:GLN:O	2.17	0.45
1:B:137:SER:HB2	1:B:192:ASN:OD1	2.17	0.45
1:B:209:LYS:HE3	1:B:210:HIS:CE1	2.51	0.45
1:C:77:THR:O	1:C:103:SER:HA	2.16	0.45
1:F:69:ILE:HG13	1:F:89:LEU:HB3	1.99	0.45
1:C:23:ARG:HH21	1:C:23:ARG:CG	2.30	0.45
1:D:36:GLN:HE22	1:D:302:ARG:HH12	1.63	0.45
1:B:230:ASN:HB3	1:B:233:GLU:HB2	1.99	0.45
1:C:122:PRO:HB3	1:C:128:GLN:O	2.18	0.44
1:B:199:VAL:CG1	1:B:203:HIS:HB2	2.48	0.44
1:D:23:ARG:HG2	1:D:23:ARG:HH21	1.81	0.44
1:E:46:VAL:HB	1:E:118:LYS:HB2	2.00	0.44
1:B:379:ASP:H	1:E:82:ASN:HD21	1.65	0.44
1:F:390:LYS:HD3	1:F:401:VAL:CG1	2.47	0.44
1:B:416:ALA:O	1:B:417:ARG:HG2	2.18	0.44
1:F:21:ASN:HD21	1:F:198:LYS:HG2	1.83	0.44
1:D:214:VAL:HG21	1:D:227:ASN:HB3	2.00	0.44
1:B:46:VAL:HB	1:B:118:LYS:HB2	2.00	0.44
1:B:257:LEU:HD12	1:B:257:LEU:HA	1.85	0.44
1:E:345:ALA:O	1:E:347:HIS:HD2	2.01	0.44
1:C:255:PRO:O	1:C:258:GLN:HB2	2.18	0.43
1:E:87:PHE:CE1	1:E:228:PRO:HD3	2.53	0.43
1:A:46:VAL:HB	1:A:118:LYS:HB2	1.99	0.43
1:B:67:LEU:C	1:B:67:LEU:HD12	2.38	0.43
1:B:342:ILE:O	1:B:344:PRO:HD3	2.18	0.43
1:C:407:ASN:HD22	1:D:158:ALA:HB2	1.82	0.43
1:C:82:ASN:ND2	2:C:472:HOH:O	2.43	0.43
1:C:342:ILE:O	1:C:344:PRO:HD3	2.19	0.43
1:D:57:LEU:HD12	1:D:57:LEU:HA	1.90	0.43
1:D:67:LEU:C	1:D:67:LEU:HD12	2.39	0.43
1:B:330:ARG:HD2	1:E:146:GLY:O	2.18	0.43
1:C:404:LEU:HD23	1:D:167:LEU:HG	2.01	0.43
1:C:71:GLN:HE21	1:C:115:ARG:HH21	1.66	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:46:VAL:HB	1:D:118:LYS:HB2	2.01	0.43
1:E:30:PHE:CD1	1:E:342:ILE:HD11	2.53	0.43
1:C:301:VAL:O	1:D:130:GLU:HG3	2.19	0.43
1:E:57:LEU:HD12	1:E:57:LEU:HA	1.84	0.42
1:F:342:ILE:O	1:F:344:PRO:HD3	2.19	0.42
1:E:343:MET:HE1	2:E:423:HOH:O	2.19	0.42
1:A:206:GLU:HG2	1:D:388:GLN:HE21	1.84	0.42
1:A:379:ASP:OD2	1:A:412:HIS:CE1	2.65	0.42
1:C:69:ILE:HG13	1:C:89:LEU:HB3	2.01	0.42
1:D:417:ARG:NE	1:D:417:ARG:HA	2.34	0.42
1:E:91:GLU:OE2	1:E:232:ARG:NH2	2.52	0.42
1:C:138:ARG:HB3	1:C:192:ASN:HB3	2.01	0.42
1:D:398:GLY:O	1:D:402:GLU:HG3	2.19	0.42
1:E:269:ILE:CD1	1:E:275:VAL:CG2	2.97	0.42
1:A:93:HIS:CD2	1:A:214:VAL:HG21	2.54	0.42
1:A:233:GLU:CD	1:F:235:GLU:CG	2.88	0.42
1:B:91:GLU:CD	1:B:232:ARG:NH2	2.73	0.42
1:A:390:LYS:HD3	1:A:401:VAL:CG1	2.50	0.42
1:D:256:GLN:HG2	2:D:451:HOH:O	2.19	0.42
1:A:58:PRO:HG3	1:A:104:TYR:CD1	2.55	0.42
1:A:91:GLU:CD	1:A:232:ARG:NH2	2.73	0.42
1:A:230:ASN:HB3	1:A:233:GLU:HB2	2.02	0.42
1:E:296:LEU:HD22	1:E:297:GLU:N	2.35	0.42
1:F:23:ARG:HH21	1:F:23:ARG:CG	2.33	0.42
1:C:46:VAL:HB	1:C:118:LYS:HB2	2.02	0.41
1:D:69:ILE:HG13	1:D:89:LEU:HB3	2.01	0.41
1:A:200:SER:O	1:A:204:VAL:HG23	2.20	0.41
1:E:298:LEU:HD23	1:E:298:LEU:C	2.41	0.41
1:C:404:LEU:HD23	1:D:166:VAL:HG22	2.01	0.41
1:D:58:PRO:HG3	1:D:104:TYR:CD1	2.55	0.41
1:E:67:LEU:C	1:E:67:LEU:HD12	2.41	0.41
1:E:70:GLN:HE21	1:E:290:ASN:ND2	2.19	0.41
1:F:257:LEU:HD12	1:F:257:LEU:HA	1.91	0.41
1:B:93:HIS:CD2	1:B:214:VAL:CG2	2.99	0.41
1:B:52:PRO:HD3	1:B:113:ASN:ND2	2.36	0.41
1:D:50:ALA:HB1	1:D:54:THR:HG21	2.02	0.41
1:D:91:GLU:CD	1:D:232:ARG:NH2	2.74	0.41
1:F:415:SER:C	1:F:417:ARG:H	2.24	0.41
1:A:57:LEU:HD12	1:A:57:LEU:HA	1.91	0.41
1:B:50:ALA:HB1	1:B:54:THR:HG21	2.03	0.41
1:D:257:LEU:HD12	1:D:257:LEU:HA	1.87	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:401:VAL:HG22	1:F:166:VAL:HG23	2.03	0.41
1:F:199:VAL:CG1	1:F:203:HIS:HB2	2.51	0.41
1:C:75:THR:OG1	1:C:88:ASN:ND2	2.54	0.41
1:C:93:HIS:CD2	1:C:214:VAL:HG21	2.56	0.41
1:E:200:SER:O	1:E:204:VAL:HG23	2.21	0.41
1:E:406:LYS:HA	1:E:406:LYS:HE3	2.03	0.41
1:E:8:PHE:HA	1:E:9:PRO:HD2	1.99	0.41
1:A:169:GLU:O	1:D:395:PRO:HG3	2.21	0.40
1:B:398:GLY:O	1:B:402:GLU:HG3	2.21	0.40
1:C:91:GLU:CD	1:C:232:ARG:NH2	2.74	0.40
1:E:277:PRO:HB3	1:F:147:PHE:CE1	2.57	0.40
1:F:200:SER:O	1:F:204:VAL:HG23	2.21	0.40
1:A:398:GLY:O	1:A:402:GLU:HG3	2.21	0.40
1:C:390:LYS:HD3	1:C:401:VAL:CG1	2.52	0.40
1:A:50:ALA:HB1	1:A:54:THR:HG21	2.03	0.40
1:C:52:PRO:HD3	1:C:113:ASN:ND2	2.35	0.40
1:E:50:ALA:HB1	1:E:54:THR:HG21	2.02	0.40
1:F:398:GLY:O	1:F:402:GLU:HG3	2.21	0.40
1:C:270:LYS:HD3	1:C:270:LYS:HA	1.92	0.40
1:D:255:PRO:O	1:D:258:GLN:HB2	2.21	0.40
1:E:36:GLN:HE22	1:E:302:ARG:HH22	1.67	0.40
1:F:70:GLN:HE21	1:F:290:ASN:HD22	1.70	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	364/418 (87%)	351 (96%)	13 (4%)	0	100	100
1	B	356/418 (85%)	343 (96%)	13 (4%)	0	100	100
1	C	361/418 (86%)	349 (97%)	12 (3%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	D	364/418 (87%)	352 (97%)	12 (3%)	0	100 100
1	E	356/418 (85%)	342 (96%)	13 (4%)	1 (0%)	37 44
1	F	355/418 (85%)	340 (96%)	15 (4%)	0	100 100
All	All	2156/2508 (86%)	2077 (96%)	78 (4%)	1 (0%)	100 100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	219	SER

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	326/364 (90%)	300 (92%)	26 (8%)	10 11
1	B	318/364 (87%)	293 (92%)	25 (8%)	10 11
1	C	322/364 (88%)	297 (92%)	25 (8%)	10 12
1	D	323/364 (89%)	296 (92%)	27 (8%)	9 9
1	E	316/364 (87%)	293 (93%)	23 (7%)	11 13
1	F	317/364 (87%)	292 (92%)	25 (8%)	10 11
All	All	1922/2184 (88%)	1771 (92%)	151 (8%)	10 11

All (151) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	15	THR
1	A	16	ARG
1	A	54	THR
1	A	57	LEU
1	A	67	LEU
1	A	83	ASN
1	A	89	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	96	ARG
1	A	106	LEU
1	A	108	ARG
1	A	121	MET
1	A	166	VAL
1	A	168	LEU
1	A	191	ASN
1	A	232	ARG
1	A	257	LEU
1	A	265	THR
1	A	267	VAL
1	A	287	VAL
1	A	288	VAL
1	A	296	LEU
1	A	326	ARG
1	A	352	ASN
1	A	358	HIS
1	A	403	LYS
1	A	406	LYS
1	B	15	THR
1	B	16	ARG
1	B	54	THR
1	B	57	LEU
1	B	67	LEU
1	B	83	ASN
1	B	89	LEU
1	B	96	ARG
1	B	106	LEU
1	B	108	ARG
1	B	121	MET
1	B	166	VAL
1	B	168	LEU
1	B	232	ARG
1	B	257	LEU
1	B	265	THR
1	B	267	VAL
1	B	287	VAL
1	B	288	VAL
1	B	296	LEU
1	B	352	ASN
1	B	358	HIS
1	B	403	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	406	LYS
1	B	417	ARG
1	C	15	THR
1	C	16	ARG
1	C	54	THR
1	C	57	LEU
1	C	67	LEU
1	C	83	ASN
1	C	89	LEU
1	C	96	ARG
1	C	106	LEU
1	C	108	ARG
1	C	121	MET
1	C	166	VAL
1	C	168	LEU
1	C	232	ARG
1	C	257	LEU
1	C	265	THR
1	C	267	VAL
1	C	287	VAL
1	C	288	VAL
1	C	296	LEU
1	C	326	ARG
1	C	352	ASN
1	C	358	HIS
1	C	403	LYS
1	C	406	LYS
1	D	15	THR
1	D	16	ARG
1	D	54	THR
1	D	57	LEU
1	D	67	LEU
1	D	83	ASN
1	D	89	LEU
1	D	96	ARG
1	D	106	LEU
1	D	108	ARG
1	D	121	MET
1	D	166	VAL
1	D	168	LEU
1	D	213	SER
1	D	214	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	D	232	ARG
1	D	257	LEU
1	D	265	THR
1	D	267	VAL
1	D	287	VAL
1	D	288	VAL
1	D	296	LEU
1	D	326	ARG
1	D	352	ASN
1	D	358	HIS
1	D	403	LYS
1	D	406	LYS
1	E	15	THR
1	E	16	ARG
1	E	54	THR
1	E	57	LEU
1	E	67	LEU
1	E	83	ASN
1	E	96	ARG
1	E	106	LEU
1	E	108	ARG
1	E	121	MET
1	E	166	VAL
1	E	168	LEU
1	E	232	ARG
1	E	257	LEU
1	E	265	THR
1	E	267	VAL
1	E	287	VAL
1	E	288	VAL
1	E	296	LEU
1	E	352	ASN
1	E	358	HIS
1	E	403	LYS
1	E	406	LYS
1	F	15	THR
1	F	16	ARG
1	F	54	THR
1	F	57	LEU
1	F	67	LEU
1	F	83	ASN
1	F	96	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	F	106	LEU
1	F	108	ARG
1	F	121	MET
1	F	166	VAL
1	F	168	LEU
1	F	232	ARG
1	F	257	LEU
1	F	265	THR
1	F	267	VAL
1	F	287	VAL
1	F	288	VAL
1	F	296	LEU
1	F	302	ARG
1	F	326	ARG
1	F	352	ASN
1	F	358	HIS
1	F	403	LYS
1	F	406	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (108) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	21	ASN
1	A	32	GLN
1	A	41	GLN
1	A	47	GLN
1	A	53	ASN
1	A	71	GLN
1	A	73	GLN
1	A	82	ASN
1	A	88	ASN
1	A	93	HIS
1	A	113	ASN
1	A	210	HIS
1	A	256	GLN
1	A	290	ASN
1	A	347	HIS
1	A	365	ASN
1	A	368	ASN
1	A	388	GLN
1	A	412	HIS
1	B	21	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	32	GLN
1	B	47	GLN
1	B	71	GLN
1	B	73	GLN
1	B	82	ASN
1	B	88	ASN
1	B	93	HIS
1	B	113	ASN
1	B	256	GLN
1	B	290	ASN
1	B	347	HIS
1	B	352	ASN
1	B	368	ASN
1	B	384	GLN
1	B	388	GLN
1	B	412	HIS
1	C	21	ASN
1	C	32	GLN
1	C	36	GLN
1	C	47	GLN
1	C	71	GLN
1	C	73	GLN
1	C	88	ASN
1	C	93	HIS
1	C	113	ASN
1	C	256	GLN
1	C	290	ASN
1	C	347	HIS
1	C	352	ASN
1	C	365	ASN
1	C	368	ASN
1	C	384	GLN
1	C	412	HIS
1	D	21	ASN
1	D	32	GLN
1	D	36	GLN
1	D	47	GLN
1	D	53	ASN
1	D	71	GLN
1	D	73	GLN
1	D	88	ASN
1	D	93	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	D	113	ASN
1	D	256	GLN
1	D	290	ASN
1	D	347	HIS
1	D	352	ASN
1	D	365	ASN
1	D	368	ASN
1	D	384	GLN
1	D	388	GLN
1	D	412	HIS
1	E	21	ASN
1	E	32	GLN
1	E	36	GLN
1	E	47	GLN
1	E	53	ASN
1	E	71	GLN
1	E	73	GLN
1	E	82	ASN
1	E	88	ASN
1	E	93	HIS
1	E	113	ASN
1	E	254	ASN
1	E	256	GLN
1	E	290	ASN
1	E	347	HIS
1	E	365	ASN
1	E	368	ASN
1	E	384	GLN
1	E	412	HIS
1	F	21	ASN
1	F	32	GLN
1	F	36	GLN
1	F	47	GLN
1	F	53	ASN
1	F	71	GLN
1	F	73	GLN
1	F	88	ASN
1	F	93	HIS
1	F	113	ASN
1	F	256	GLN
1	F	290	ASN
1	F	347	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	F	352	ASN
1	F	368	ASN
1	F	384	GLN
1	F	412	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

6 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	CSD	E	266	1	4,7,8	1.43	1 (25%)	1,8,10	1.88	0
1	CSD	C	266	1	4,7,8	0.93	0	1,8,10	1.20	0
1	CSD	F	266	1	4,7,8	1.00	0	1,8,10	3.03	1 (100%)
1	CSD	A	266	1	4,7,8	1.37	1 (25%)	1,8,10	1.61	0
1	CSD	B	266	1	4,7,8	0.96	0	1,8,10	2.07	1 (100%)
1	CSD	D	266	1	4,7,8	1.19	0	1,8,10	2.03	1 (100%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	CSD	E	266	1	-	1/2/6/8	-
1	CSD	C	266	1	-	1/2/6/8	-
1	CSD	F	266	1	-	1/2/6/8	-
1	CSD	A	266	1	-	1/2/6/8	-
1	CSD	B	266	1	-	1/2/6/8	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	CSD	D	266	1	-	1/2/6/8	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	266	CSD	OD1-SG	-2.55	1.45	1.47
1	A	266	CSD	OD1-SG	-2.09	1.45	1.47

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	F	266	CSD	OD1-SG-CB	3.03	111.18	105.60
1	B	266	CSD	OD1-SG-CB	2.07	109.42	105.60
1	D	266	CSD	OD1-SG-CB	2.03	109.33	105.60

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	266	CSD	CA-CB-SG-OD1
1	B	266	CSD	CA-CB-SG-OD1
1	C	266	CSD	CA-CB-SG-OD1
1	D	266	CSD	CA-CB-SG-OD1
1	E	266	CSD	CA-CB-SG-OD1
1	F	266	CSD	CA-CB-SG-OD1

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	372/418 (88%)	-0.45	2 (0%) 87 88	26, 42, 75, 120	0
1	B	364/418 (87%)	-0.41	0 100 100	28, 43, 71, 96	0
1	C	369/418 (88%)	-0.47	1 (0%) 90 91	25, 42, 72, 95	0
1	D	372/418 (88%)	-0.37	3 (0%) 82 83	26, 41, 69, 93	0
1	E	364/418 (87%)	-0.19	4 (1%) 77 79	29, 44, 73, 122	0
1	F	363/418 (86%)	-0.28	0 100 100	28, 44, 72, 97	0
All	All	2204/2508 (87%)	-0.36	10 (0%) 87 88	25, 43, 72, 122	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	171	ASN	3.7
1	E	399	GLU	3.2
1	D	399	GLU	2.6
1	C	171	ASN	2.6
1	D	218	GLY	2.5
1	A	171	ASN	2.4
1	E	403	LYS	2.4
1	E	416	ALA	2.2
1	A	139	ASP	2.1
1	E	391	ASP	2.1

6.2 Non-standard residues in protein, DNA, RNA chains

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	CSD	B	266	8/9	0.79	0.11	30,40,57,71	0
1	CSD	C	266	8/9	0.87	0.10	33,37,59,71	0
1	CSD	D	266	8/9	0.88	0.09	27,36,58,72	0
1	CSD	E	266	8/9	0.89	0.09	34,39,61,78	0
1	CSD	F	266	8/9	0.89	0.08	35,38,53,75	0
1	CSD	A	266	8/9	0.91	0.07	27,35,59,73	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.